

FEMA MODEL ORDINANCE
For
FLOOD LOSS REDUCTION & FISH HABITAT ENHANCEMENT

REVISED November 6, 2001

SECTION 1.0: STATUTORY AUTHORIZATION, FINDINGS OF FACT, PURPOSE AND OBJECTIVES

1 STATUTORY AUTHORIZATION

The Legislature of the State of _____ has delegated the responsibility to local governmental units to adopt regulations designed to promote the public health, safety, and general welfare of its citizenry. Therefore, the _____ of _____, does ordain as follows:

1. FINDINGS OF FACT

3 The flood hazard areas of _____ are subject to periodic inundation which results in loss of life and property, health, and safety hazards, disruption of commerce and governmental services, extraordinary public expenditures for flood protection and relief, and impairment of the tax base, all of which adversely affect the public health, safety, and general welfare.

4 These flood losses are caused by placing capital development and infrastructure on areas prone to inundation the-cumulative effect of obstructions in areas of special flood hazards which increase flood heights and velocities, and when inadequately anchored, damage uses in other areas. Uses that are inadequately floodproofed, elevated, or otherwise protected from flood damage also contribute to the flood loss.

5 Floodplain and stream connectivity is a major element in maintaining healthy riparian habitat and off-channel habitats for the survival of fish species and conveyance of floodwaters in the northwest. If river, floodplains and other systems are not viewed holistically as biological, geomorphological units, this can lead to serious degradation of habitat and increase flood hazards which, in turn, can contribute to listing of various fish species as threatened or endangered and result in extraordinary public expenditures for flood protection and relief.

3. STATEMENT OF PURPOSE

It is the purpose of this ordinance to promote the public health, safety, and general welfare, to maintain streams and floodplains in their natural state to the maximum extent possible so

they support healthy biological ecosystems, and to minimize public and private losses due to flood conditions in specific areas by provisions designed:

- _3__ To protect human life and health;
- _4__ To minimize expenditure of public money for and costly flood control projects and flood damage repair;
- _5__ To minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;
- _6__ To minimize prolonged business interruptions;
- _7__ To minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets, and bridges located in areas of special flood hazard;
- _8__ To help provide maintain a stable tax base by providing for the sound use and development of areas of special flood hazard so as to minimize future flood blight areas;
- _9__ To ensure that potential buyers are notified that property is in an area of special flood hazard; and,
- _10__ To ensure that those who occupy the areas of special flood hazard assume responsibility for their actions.
- _11__ To assure that flood loss reduction measures under the NFIP protect are consistent with retaining natural floodplain functions related to protecting riparian habitat and the natural processes that create and maintain habitat for fish.
- _12__ To assure no net loss of hydraulic, geomorphic, and ecological functions of floodplains.

4. METHODS OF REDUCING FLOOD LOSSES

In order to accomplish its purposes, this ordinance includes methods and provisions for:

- _13__ Restricting or prohibiting uses which are dangerous to health, safety, and property due to water or erosion hazards, or which result in damaging increases in erosion or in flood heights or velocities;
- _14__ Requiring that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction or relocated and possibly relocating uses outside of the floodplain;
- _15__ Restricting Controlling the alteration of natural flood plains, stream channels, and natural protective barriers, which help accommodate or channel flood waters;
- _16__ RESTRICTING Controlling filling, grading, dredging, and other development which may increase flood damage and alter beneficial natural stream processes; and

_17__ Preventing or regulating the construction of flood barriers that would which will unnaturally divert floodwaters in such as way as to, block natural channel migration, or may increase flood hazards in other areas.

SECTION 2.0: DEFINITIONS

Unless specifically defined below, words or phrases used in this ordinance shall be interpreted so as to give them the meaning they have in common usage and to give this ordinance its most reasonable application.

“APPEAL” means a request for a review of the interpretation of any provision of this ordinance or a request for a variance.

“AREA OF SHALLOW FLOODING” means a designated AO, or AH Zone on the Flood Insurance Rate Map (FIRM). The base flood depths range from one to three feet; a clearly defined channel does not exist; the path of flooding is unpredictable and indeterminate; and, velocity flow may be evident. AO is characterized as sheet flow and AH indicates ponding.

“AREA OF SPECIAL FLOOD HAZARD” means the land in the flood plain within a community subject to a one percent or greater chance of flooding in any given year. Designation on maps always includes the letters A or V.

“BASE FLOOD,” means the flood having a one percent chance of being equaled or exceeded in any given year. Also referred to as the “100-year flood.” Designation on maps always includes the letters A or V.

“BASEMENT” means any area of the building having its floor subgrade (below ground level) on all sides.

“BREAKAWAY WALL” means a wall that is not part of the structural support of the building and is intended through its design and construction to collapse under specific lateral loading forces, without causing damage to the elevated portion of the building or supporting foundation system.

“CHANNEL MIGRATION ZONE” means the lateral extent of likely movement along a stream reach during the next one hundred years with evidence of active stream channel movement over the past one hundred years. Evidence of active movement can be provided from aerial photos or specific channel and valley bottom characteristics. A time frame of one hundred years was chosen because aerial photos and field evidence can be used to evaluate movement in this time frame. Also, this time span typically represents the time it takes to grow mature trees that can provide functional large woody debris to most streams. In large meandering rivers a more detailed analysis can be conducted to relate bank erosion processes and the time required to grow trees that function as

stable large woody debris.

With the exception of shorelands in or meeting the criteria for the "natural" and "rural conservancy" environments, areas separated from the active channel by legally existing artificial channel constraints that limit bank erosion and channel avulsion without hydraulic connections shall not be considered within the CMZ. All areas, including areas within the "natural" and "rural conservancy" environments, separated from the natural channel by legally existing structures designed to withstand the 100-year flood shall not be considered within the CMZ. A tributary stream or other hydraulic connection allowing PTE species fish passage draining through a dike or other constricting structure shall be considered part of the CMZ.

Note: I've used the definition of Channel Migration Zone from the Shoreline Guidelines for reference.

The second paragraph is a very important concept that should be retained in the model ordinance.

It's saying, in effect, that an area protected from flooding by a legally existing structure designed to protect against the 100 year flood would not be considered part of the CMZ. If you have a structure that protects against a lesser event (say, a 25yr flood), the protected area might or might not be considered part of the CMZ, depending upon land use. Areas already developed would not be considered part of the CMA, but rural or undeveloped areas would. The local jurisdictions are going to be using the Shoreline Guidelines or something very similar as a tool in designating land use in most floodplains. So, it is a convenient way to define CMZ. Using your definition, we lose the ability to restore many of the areas important to salmonids.

Means the lateral extent of likely movement along a stream reach during the next one hundred years with evidence of active stream channel movement over the past one hundred years. Evidence of active movement can be provided from aerial photos or specific channel and valley bottom characteristics. A time frame of one hundred means the lateral extent of active channel movement along a stream reach over the past 100 years. Evidence of active movement over the 100-year time frame can be inferred from aerial photos or from specific channel and valley bottom characteristics. Also, the time span typically represents the time it takes to grow mature trees that can provide functional large woody debris to streams. A CMZ is not typically present if the valley width is generally less than two bank full widths, is confined by terraces, no current or historical aerial photographic evidence exists of significant channel movement, and there is no field evidence of secondary channels with recent scour from stream flow or progressive bank erosion at meander bends. Areas separated from the active channel by legally existing artificial channel constraints that limit bank erosion and channel avulsion without hydraulic connections shall not be considered within the CMZ

“COASTAL HIGH HAZARD AREA” means an area of special flood hazard extending from offshore to the inland limit of a primary frontal dune along an open coast and any other area subject to high velocity wave action

from storms or seismic sources. The area is designated on the FIRM as Zone V1-30, VE or V.

“CRITICAL FACILITY” means a facility for which even a slight chance of flooding might be too great. Critical facilities include, but are not limited to schools, nursing homes, hospitals, police, fire and emergency response installations, installations which produce, use or store hazardous materials or hazardous waste. Add: “Critical facilities should not be sited in flood hazard zones, since history tells us that we cannot guarantee protection from flooding. “

“DEVELOPMENT” means any man-made change to improved or unimproved real estate, including but not limited to buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations, storage of equipment or materials, or any other activity which results in the removal of substantial amounts of vegetation or in the alteration of natural site characteristics located within the area of special flood hazard.

“ELEVATED BUILDING” means for insurance purposes, a no basement building which has its lowest elevated floor raised above ground level by foundation walls, shear walls, post, piers, pilings, or columns.

“EXISTING MANUFACTURED HOME PARK OR SUBDIVISION” means a manufactured home park or subdivision for which the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including, at a minimum, the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads) is completed before the effective date of the adopted floodplain management regulations.

“EXPANSION TO AN EXISTING MANUFACTURED HOME PARK OR SUBDIVISION” means the preparation of additional sites by the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads).

“FLOOD” or “FLOODING,” means a general and temporary condition of partial or complete inundation of normally dry land areas from:

_18__ The overflow of inland or tidal waters and/or

_19__ The unusual and rapid accumulation of runoff of surface waters from any source.

“FLOOD INSURANCE RATE MAP (FIRM)” means the official map on which the Federal Insurance Administration has delineated both the areas of special flood hazards and the risk premium zones applicable to the community.

“FLOOD INSURANCE STUDY” means the official report provided by the Federal Insurance Administration that includes flood profiles, the Flood Boundary-Floodway Map, and the water surface elevation of the base flood.

“FLOODWAY” means the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than one foot. Note: Is this definition set in stone? A one-foot rise could have vastly different implications for different rivers in terms of the area of flood plain allowed to be developed. If possible, it would be good to scale the “allowable rise” to the size of various rivers rather than a “one size fits all.”

“HABITAT” means the combination of essential elements in the ecological function of riverine and marine shoreline systems that, for threatened, endangered, and priority species of fish, included but not limited to adequate: 1) substrate; 2) water quality; 3) water quantity; 4) water temperature; 5) water velocity; 6) cover/shelter; 7) food (juveniles only); 8) riparian vegetation; 9) space; and 10) safe passage conditions; and 11) stable channel and bed. Other elements may include an essential element in ecological functions of riverine and marine shoreline systems that, for threatened, endangered and priority species of fish, includes, but is not limited to, shade and moderation of water temperature, streambank stabilization, shoreline protection, riparian corridors, large woody debris (lwd), lwd recruitment processes, a natural range of variability of flows, and off-channel rearing areas control of sediment input from surface erosion, regulation of nutrient and pollutant inputs to streams, litter, and woody debris recruitment, refugia, and food production.

“HYPORHEIC ZONE” is the saturated zone located beneath and adjacent to streams that contains some portion of surface waters and means the area of subsurface flow between surface water and the water table; it is generally above the groundwater level, serves as a filter for nutrients and maintains high water quality. Floodplains provide coarse beds of alluvial sediments through which these subsurface river flows pass, much like a filter, contributing to habitat.

“IMPERVIOUS SURFACE” means any material or land alteration (i.e., clearing, grading, etc.) which reduces or prevents absorption of storm water into previously undeveloped land. That hard surface area which either prevents or retards the entry of water into the soil, water that had entered under natural conditions prior to development; and/or that hard surface area that causes water to run off the surface in greater quantities or at an increased rate of flow from that present under natural conditions prior to development. Common impervious surfaces include, but are not limited to: roof tops, walkways, patios, driveways, parking lots or storage areas, concrete or asphalt paving, gravel roads, and packed earthen materials.

“LOWEST FLOOR” means the lowest floor of the lowest enclosed area (including basement). An unfinished or flood resistant enclosure, usable solely for parking of vehicles, building access or storage, in an area other than a basement area, is not considered a building’s lowest floor, provided that such enclosure is not built so as to render the structure in violation of the applicable non-elevation design requirements of this ordinance found at Section 5.2-1(2).

“MANUFACTURED HOME” means a structure, transportable in one or more sections, which is built on a permanent chassis and is designed for use with or without a permanent foundation when attached to the required utilities. The term “manufactured home” does not include a “recreational vehicle.”

“MANUFACTURED HOME PARK OR SUBDIVISION” means a parcel (or contiguous parcels) of land divided into two or more manufactured home lots for rent or sale.

“NEW CONSTRUCTION” means structures for which the “start of construction” commenced on or after the effective date of this ordinance.

“NEW MANUFACTURED HOME PARK OR SUBDIVISION” means a manufactured home park or subdivision for which the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including at a minimum, the installation of utilities, the construction of streets, and either final site grading or

the pouring of concrete pads) is completed on or after the effective date of adopted floodplain management regulations.

“PROTECTED AREA” means any land and vegetation that lies within the Riparian Buffer Zone, channel migration zone, and/or floodplain, whichever is more restrictive.

“QUALIFIED PROFESSIONAL” means a person with experience and training in fish and wildlife issues and/or river systems; who has experience analyzing fish and wildlife habitats and their functions and values, impacts to the habitats, channel morphology, and mitigation; who derives his/her livelihood from employment as a habitat management consultant or fisheries biologist, or who functions in these areas but as a fluvial geomorphologist. Qualifications include: [1] a B.S. or B.A. or equivalent degree in biology, environmental studies, fisheries, geomorphology or related field, and two years of related work experience, or; [2] five years of related work experience.

“RECREATIONAL VEHICLE” means a vehicle which is:

- _1__ Built on a single chassis;
- _2__ 400 square feet or less when measured at the largest horizontal projection;
- _3__ Designed to be self-propelled or permanently tow able by a light duty truck; and
- _4__ Designed primarily not for use as a permanent dwelling but as temporary living quarters for recreational, camping, travel, or seasonal use.

“RIPARIAN BUFFER ZONE” means an overlay zone that encompasses all land within distances specified in the ordinance on all watercourses and on either side of all streams measured as a line extending perpendicularly ordinary high water, and within which vegetation retention, pervious surfaces and special management practices are required for the protection of water quality, hydrologic functions, and fish and wildlife habitat. The federal services consider riparian buffer zones as the land adjacent to a water body including off channel areas equal to one site-potential tree height measured perpendicularly from the bank full flow.

Note: I put the definition of the vegetation

“START OF CONSTRUCTION” includes substantial improvement, and means the date the building permit was issued, provided the actual start of construction, repair, reconstruction, placement or other improvement was within 180 days of the permit date. The actual start means either the first placement of permanent construction of a structure on a site, such as the pouring of slab or footings, the installation of piles, the construction of columns, or any work beyond the stage of excavation; or the placement of a manufactured home on a foundation. Permanent construction does not include land preparation, such as clearing, grading and filling; nor does it include the installation of streets and/or walkways; nor does it include excavation for a basement, footings, piers, or foundations or the erection of temporary forms; nor does it include the installation on the property of accessory buildings, such as garages or sheds not occupied as dwelling units or not part of the main structure. For a substantial improvement, the actual start of construction means the first alteration of any wall, ceiling, floor, or other structural part of a building, whether or not that alteration affects the external dimensions of the building.

“STRUCTURE” means a walled and roofed building including a gas or liquid storage tank that is principally above ground.

“SUBSTANTIAL DAMAGE” means damage of any origin sustained by a structure whereby the cost of restoring the structure to its before damaged condition would equal or exceed 50 percent of the market value of the structure before the damage occurred.

“SUBSTANTIAL IMPROVEMENT” means any repair, reconstruction, or improvement of a structure, the cost of which equals or exceeds 50 percent of the market value of the structure either:

20 Before the improvement or repair is started; or

21 If the structure has been damaged and is being restored, before the damage occurred. For the purposes of this definition “substantial improvement” is considered to occur when the first alteration of any wall, ceiling, floor, or other structural part of the building commences, whether or not that alteration affects the external dimensions of the structure.

The term does not, however, include either:

22 Any project for improvement of a structure to correct existing violations of state or local health, sanitary, or safety code specifications which have been identified by the local code enforcement official and which are the minimum necessary to assure safe living conditions, or

23 Any alteration of a structure listed on the National Register of Historic Places or a State Inventory of Historic Places.

“VARIANCE” means a grant of relief from the requirements of this ordinance which permits construction in a manner that would otherwise be prohibited by this ordinance.

“WATER DEPENDENT” means a structure or use for commerce or industry which cannot exist in any other location and is dependent on the water by reason of the intrinsic nature of its operations. A use that can be carried out only on, in or adjacent to water areas because the use requires access to the water body for waterborne transportation, recreation, energy production or source of water. Examples include ship cargo terminal loading areas, fishing, ferry and passenger terminals, barge loading facilities, ship building and dry docking, marinas, aquaculture, float plane facilities, hydroelectric dams, surface water intake, and sewer outfalls.

“WATER TYPING SYSTEM” means a system for classifying streams according to their size and fish habitat characteristics. The system is based generally on the Washington Department of Natural Resources classification system, and includes the following:

- 1_ Type 1: includes all major salmonid-bearing streams that are mapped on the FEMA Flood Insurance Rate Maps. In Washington State, this includes all waters inventoried as “shorelines of the State.”
- 2_ Type 2: includes segments of natural waters not classified as Type 1 that are salmonid-bearing, and are used by substantial numbers of fish for spawning, rearing or migration. Waters are presumed to have highly significant fish populations if they include stream

segments having a defined channel 20 feet or greater within the bank full width, are lakes, ponds or impoundments having a surface area of one acre or greater, or are waters used by salmonids for off-channel habitat.

- 3_ Type 3: includes segments of natural waters which are not classified as Type 1 or 2, and have a moderate to slight fish, wildlife and human use. These waters typically have a defined channel of 5 to 20 feet within the bank full width, or are ponds or impoundments having a surface area of less than one acre.
- 4_ Type 4: includes segments of natural waters with bank full widths of defined channels that are not Type 1, 2 or 3 waters, are typically less than 5 feet in width and which are perennial waters of nonfish-bearing streams.
- 5_ Type 5: includes segments of natural waters with bank full widths of defined channels that are not Types 1-4, are less than 5' wide and are seasonal nonfish-bearing streams.

Note: the Washington Department of Natural Resources has updated definitions of these stream types that you may want to incorporate.

SECTION 3.0: GENERAL PROVISIONS

__1__ LANDS TO WHICH THIS ORDINANCE APPLIES

This ordinance shall apply to all areas of special flood hazards within the jurisdiction of _____.

__2__ BASIS FOR ESTABLISHING THE AREAS OF SPECIAL FLOOD HAZARD

The areas of special flood hazard identified by the Federal Insurance Administration in a scientific and engineering report entitled "The Flood Insurance Study for (community name) ____" dated _____, 20__, and any revisions thereto, with an accompanying Flood Insurance Rate Map (FIRM), and any revisions thereto, are hereby adopted by reference and declared to be a part of this ordinance. The Flood Insurance Study and the FIRM are on file at __ (community address). The best available information for flood hazard area identification as outlined in Section 4.3-2 shall be the basis for regulation until a new FIRM is issued which incorporates the data utilized under Section 4.3-2. Any flood information that is more restrictive or detailed than the FEMA data can be used for flood loss reduction and/or fisheries habitat management purposes, including data on channel migration, more restrictive floodways, maps showing future build-out conditions, specific maps from watershed or related studies that show riparian habitat areas, or similar maps.

__3__ PENALTIES FOR NONCOMPLIANCE

No structure or land shall hereafter be constructed, located, extended, converted, or altered without full compliance with the terms of this ordinance and other applicable regulations. Violations of the provisions of this ordinance by failure to comply with any of its requirements (including violations of

conditions and safeguards established in connection with conditions) shall constitute a misdemeanor. Any person who violates this ordinance or fails to comply with any of its requirements shall upon conviction thereof be fined not more than _____ or imprisoned for not more than ____ days, or both, for each violation, and in addition shall pay all costs and expenses involved in the case. Nothing herein contained shall prevent the _____ from taking such other lawful action as is necessary to prevent or remedy any violation. You may want to include some language here about the potential consequences if the action also “takes” a species listed under the Endangered Species Act.

4 ABROGATION AND GREATER RESTRICTIONS

This ordinance is not intended to repeal, abrogate, or impair any existing easements, covenants, or deed restrictions. However, where this ordinance and another ordinance, easement, covenant, or deed restriction conflict or overlap, whichever imposes the more stringent restrictions shall prevail.

5 INTERPRETATION

In the interpretation and application of this ordinance, all provisions shall be:

- 24 Considered as minimum requirements;
- 25 Liberally construed in favor of the governing body; and,
- 26 Deemed neither to limit nor repeal any other powers granted under State statutes.

6 WARNING AND DISCLAIMER OF LIABILITY

The degree of flood protection required by this ordinance is considered reasonable for regulatory purposes and is based on scientific and engineering considerations. Larger floods can and will occur on rare occasions. Flood heights may be increased by man-made or natural causes. This ordinance does not imply that land outside the areas of special flood hazards or uses permitted within such areas will be free from flooding or flood damages. This ordinance shall not create liability on the part of _____, any officer or employee thereof, or the Federal Insurance Administration, for any flood damages that result from reliance on this ordinance or any administrative decision lawfully made hereunder.

SECTION 4.0: ADMINISTRATION

1 ESTABLISHMENT OF DEVELOPMENT PERMIT

4.1-1 Development Permit Required

A development permit shall be obtained before construction or development begins within any area

of special flood hazard established in Section 3.2. The permit shall be for all structures including manufactured homes, as set forth in the “DEFINITIONS,” and for all development including fill and other activities, also as set forth in the “DEFINITIONS.”

4.1-2 Application for Development Permit

Application for a development permit shall be made on forms furnished by the _____ and may include, but not be limited to, plans in duplicate drawn to scale showing the nature, location, dimensions, and elevations of the area in question; existing or proposed structures, fill, storage of materials, drainage facilities, and the location of the foregoing. Specifically, the following information is required:

- _27_ Elevation in relation to mean sea level, of the lowest floor (including basement) of all structures;
- _28_ Elevation in relation to mean sea level to which any structure has been floodproofed;
- _29_ Certification by a registered professional engineer or architect that the floodproofing methods for any nonresidential structure meet the floodproofing criteria in Section 5.2-2;
- _30_ Description of the extent to which a watercourse will be altered or relocated as a result of proposed development; and
- _31_ Identification of the Riparian Buffer Zone, CMZ, and/or floodplain on the site map and location of the building site location in relation to the Riparian Buffer Zone these areas.

2 DESIGNATION OF THE LOCAL ADMINISTRATOR

The (local administrator) is hereby appointed to administer and implement this ordinance by granting or denying development permit applications in accordance with its provisions.

3 DUTIES AND RESPONSIBILITIES OF THE LOCAL ADMINISTRATOR

Duties of the (local administrator) shall include, but not be limited to:

4.3-1 Permit Review

- _32_ Review all development permits to determine that the permit requirements of this ordinance have been satisfied.
- _33_ Review all development permits to determine that all necessary permits have been obtained from those Federal, State, or local governmental agencies from which prior approval is required, including those local, State or Federal permits that may be required to assure compliance with the Endangered Species Act or other appropriate fisheries regulations. If Federal funding is involved, the applicant shall furnish evidence from the Federal agency assuring compliance with the Endangered Species Act.

- _34__ Review all development permits to determine if the proposed development is located in the floodway, or in the protected area of the Riparian Buffer Zone. If located in the floodway, assure that the encroachment provisions of Section 5.4(1) are met. If located in the protected area, assure that all provisions related to the Riparian Buffer Zone at Section 5.5 are met.
- _35__ The applicant shall be notified that the (city, county) has reviewed the permit for compliance with floodplain management and riparian buffer zone requirements of this ordinance, but that it has not been reviewed for compliance with the Endangered Species Act. The decision does not conclude that activities allowed will or will not conflict with provisions of the Federal ESA, and should not be construed to authorize any activity that will conflict with or violate the ESA. It is the applicant who must ensure that the approved activities are designed, constructed, operated and maintained in a manner that complies with the ESA.
- _36__ (OPTIONAL) The applicant shall be notified that during review of this development proposal, it was determined that this property contains land within the Riparian Buffer Zone, which is an area that must remain in an undisturbed condition in which only native plants are allowed to grow, and that the applicant is required by this ordinance to record a Notice on Title on the property before a permit may be issued.
- _37__ In an effort to site structures as far away from the watercourse and protected area as possible, the applicant will be apprised of the elevations of the 10-year and 50-year floods in detailed study areas at the same time that the (city, county) provides the 100-year elevation as a part of the permit review. The applicant, in addition to plotting the 100-year elevation near the building site, will also plot the 10 and 50-year elevations on the land. The 100-year flood has a 26% chance of occurring in a 30-year period, while the 50-year flood has almost twice that chance (45%) and the 10-year flood has a 96% chance, i.e., it will almost certainly happen at least once in the 30-year period. The purpose is to show the applicant the significantly lower risk of placing the structure further away from the watercourse.

4.3-2 Use of Other Base Flood Data (In A and V Zones)

When base flood elevation data has not been provided (A and V Zones) in accordance with Section 3.2, BASIS FOR ESTABLISHING THE AREAS OF SPECIAL FLOOD HAZARD, the (local administrator) shall obtain, review, and reasonably utilize any base flood elevation and floodway data available from a Federal, State or other source, in order to administer Sections 5.2, SPECIFIC STANDARDS, and 5.4 FLOODWAYS.

4.3-3 Information to be Obtained and Maintained

- _38__ Where base flood elevation data is provided through the Flood Insurance Study, FIRM, or required as in Section 4.3-2, obtain and record the actual elevation (in relation to mean sea level) of the lowest floor (including basement) of all new or substantially improved structures, and whether or not the structure contains a basement.
- _39__ For all new or substantially improved floodproofed structures where base flood elevation data is provided through the Flood Insurance Study, FIRM, or as required in Section 4.3-2:

- _1__ Obtain and record the elevation (in relation to mean sea level) to which the structure was floodproofed and
- _2__ Maintain the floodproofing certifications required in Section 4.1-2(3).
- _40__ Maintain for public inspection all records pertaining to the provisions of this ordinance.
- 4.3-4 Alteration of Watercourses Define “alteration:
- _41__ Notify adjacent communities and the Department of Ecology prior to any alteration or relocation of a watercourse, and submit evidence of such notification to the Federal Insurance Administration.
- _42__ generally stream relocations should not be allowed unless the primary function of the action is to restore ecological functioning.
- _43__ Require that maintenance be provided within the altered or relocated portion of said watercourse so that the flood carrying capacity is not diminished. If the maintenance program calls for future cutting of planted native vegetation used in performing the alteration, the system shall be oversized at the time of construction to compensate for said vegetation growth or any other natural factor that may need future maintenance.
- _44__ Alterations and relocations, including stabilization projects, shall not degrade fish habitat or the physical processes that create and maintain habitat, or cause increased flood hazard or erosion to other properties and shall be subject to the following provisions:
- a) Bridges shall be used instead of culverts on all Type 1 streams, and shall meet fish habitat requirements of the State Department of Fish and Wildlife.
 - 2__ Any culverts that are used on fish-bearing streams must be arch/bottomless culverts or provide comparable fish protection, and must meet fish habitat requirements of the State Department of Fish and Wildlife Design Manual for Culverts, or more restrictive local standards.
 - 3__ Bridges or other crossings must allow for uninterrupted downstream movement of wood and gravel, must be as close to perpendicular to the stream as possible, be designed to minimize fill and to pass 100-year flood flows allow full channel migration and conveyance of flood water (100 year flood flows).
 - 4__ Alterations must maintain natural meander patterns, channel complexity and floodplain connectivity. Where feasible, such characteristics must be restored as part of the alteration; if not feasible because the impact is minimal, the applicant shall pay a fee in lieu into a fund the (city, county) can use on the stream, adjacent to the site, where the impact would be greater.
 - 5__ The applicant shall identify the channel migration zone for the stream at the project site and for a reasonable reach upstream and downstream of the site, and shall not undertake actions as part of the alteration that would in any way inhibit movement of the channel. (Note: you should define “reasonable.”)
 - 6__ Wherever feasible as part of an alteration, culverts that do not meet fish habitat requirements must be removed or replaced as part of the project.

- 7__ Alteration projects shall not result in blockage of side channels. If at the time of the alteration there are known barriers to fish passage into side channels, they shall be removed.
- 8__ If man-made side channels are part of an alteration project for irrigation, industrial or similar purposes, they shall be adequately screened, per requirements of the State Department of Fish and Wildlife's Salmonid Screening Manual, or more restrictive local standards.
- 9__ For any alteration of a salmonid-bearing stream whose channel is subject to migration, bioengineered ("soft") armoring of streambanks is required. For alteration of other fish-bearing streams, soft armoring of streambanks is required wherever possible, in order to allow for woody debris recruitment, gravels for spawning and creation of side channels. Whatever technique is used must be designed in accordance with the State Department of Fish and Wildlife's Stream Bank Guidelines, or more restrictive local standards. Note: this paragraph makes it seem like the only solution to altering a stream is to construct bioengineered armoring. Actually, the solution may be not to armor it at all. See the standards developed in the Shoreline Guidelines on bank stabilization.

4.3-5 Interpretation of FIRM Boundaries

Make interpretations where needed, as to exact location of the boundaries of the areas of special flood hazards (for example, where there appears to be a conflict between a mapped boundary and actual field conditions). The person contesting the location of the boundary shall be given a reasonable opportunity to appeal the interpretation as provided in Section 4.4.

NOTE - If you do not include Section 4.4 (Variance Procedure), end the above sentence after the word "interpretation" and add the following sentence: "Such appeals shall be granted consistent with the standards of Section 60.6 of the Rules and Regulations of the National Flood Insurance Program (44 CFR 59-76)."

4 VARIANCE PROCEDURE

4.4-1 Appeal Board

 45 The _____ as established by _____ shall hear and decide appeals and requests for variances from the requirements of this ordinance.

 46 The _____ shall hear and decide appeals when it is alleged there is an error in any requirement, decision, or determination made by the _____ in the enforcement or administration of this ordinance.

 47 Those aggrieved by the decision of the _____, or any taxpayer, may appeal such decision to the _____, as provided in _____.

 48 In passing upon such applications, the _____ shall consider all technical evaluations, all relevant factors, standards specified in other sections of this ordinance, and:

- _3__ The danger that materials may be swept onto other lands to the injury of others;
- _4__ The danger to life and property due to flooding or erosion damage;
- _5__ The susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the individual owner;
- _6__ The importance of the services provided by the proposed facility to the community;
- _7__ The necessity to the facility of a waterfront location, where applicable;
- _8__ The availability of alternative locations for the proposed use which are not subject to flooding or erosion damage;
- _9__ The compatibility of the proposed use with existing and anticipated development;
- _10__ The relationship of the proposed use to the comprehensive plan and flood plain management program for that area;
- _11__ The safety of access to the property in times of flood for ordinary and emergency vehicles;
- _12__ The expected heights, velocity, duration, rate of rise, and sediment transport of the flood waters and the effects of wave action, if applicable, expected at the site; and,
- _13__ The costs of providing governmental services during and after flood conditions, including maintenance and repair of public utilities and facilities such as sewer, gas, electrical, and water systems, and streets and bridges.

_49__ Upon consideration of the factors of Section 4.4-1(4) and the purposes of this ordinance, the _____ may attach such conditions to the granting of variances, as it deems necessary to further the purposes of this ordinance.

_50__ The _____ shall maintain the records of all appeal actions and report any variances to the Federal Insurance Administration upon request.

4.4-2 Conditions for Variances

_51__ Generally, the only condition under which a variance from the elevation standard may be issued is for new construction and substantial improvements to be erected on a lot of one-half acre or less in size contiguous to and surrounded by lots with existing structures constructed below the base flood level, providing items (i-xi) in Section 4.4-1(4) have been fully considered. As the lot size increases the technical justification required for issuing the variance increases.

_52__ Variances may be issued for the reconstruction, rehabilitation, or restoration of structures listed on the National Register of Historic Places or the State Inventory of Historic Places, without regard to the procedures set forth in this section.

_53__ Variances shall not be issued within a designated floodway if any increase in flood levels during the base flood discharge would result.

_54__ Variances shall only be issued upon a determination that the variance is the minimum necessary, considering the flood hazard, to afford relief.

_55__ Variances shall only be issued upon:

_14__ A showing of good and sufficient cause;

_15__ A determination that failure to grant the variance would result in exceptional hardship to the applicant;

_16__ A determination that the granting of a variance will not result in increased flood heights, additional threats to public safety, extraordinary public expense, create nuisances, cause fraud on or victimization of the public, or conflict with existing local laws or ordinances.

_56__ Variances as interpreted in the National Flood Insurance Program are based on the general zoning law principle that they pertain to a physical piece of property; they are not personal in nature and do not pertain to the structure, its inhabitants, economic or financial circumstances. They primarily address small lots in densely populated residential neighborhoods. As such, variances from the flood elevations should be quite rare.

_57__ Variances may be issued for nonresidential buildings in very limited circumstances to allow a lesser degree of floodproofing than watertight or dry-floodproofing, where it can be determined that such action will have low damage potential, complies with all other variance criteria except 4.4-2(1), and otherwise complies with Sections 5.1-1, 5.1-3, and 5.1-4 of the GENERAL STANDARDS.

_58__ Any applicant to whom a variance is granted shall be given written notice that the structure will be permitted to be built with a lowest floor elevation below the base flood elevation and that the cost of flood insurance will be commensurate with the Increased risk resulting from the reduced lowest floor elevation.

SECTION 5.0: PROVISIONS FOR FLOOD HAZARD REDUCTION

1 GENERAL STANDARDS

In all areas of special flood hazards, the following standards are required:

5.1-1 Anchoring

_59__ All new construction and substantial improvements shall be anchored to prevent flotation, collapse, or lateral movement of the structure.

_60__ All manufactured homes must likewise be anchored to prevent flotation, collapse, or lateral movement, and shall be installed using methods and practices that minimize flood damage. Anchoring methods may include, but are not limited to, use of over-the-top or frame ties to ground anchors (Reference FEMA's "Manufactured Home Installation in Flood Hazard Areas" guidebook for additional techniques).

5.1-3 Construction Materials and Methods

_61__ All new construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage.

_62__ All new construction and substantial improvements shall be constructed using methods and practices that minimize flood damage. If a lot has a buildable site out of the floodplain, new construction shall be directed to that area. For buildings that have no option and must be built in the floodplain, methods and practices include commonly-accepted measures, such as placing structures on the highest land on the lot, orienting structures parallel to flow rather than perpendicular, and siting structures as far away from the watercourse and protected area as possible (see Section 4.3-1[6]). Also, if the local administrator detects any evidence of active hyporheic exchange on a site, the building shall be located to minimize disruption of such exchange.

- _63__ Electrical, heating, ventilation, plumbing, and air-conditioning equipment and other service facilities shall be designed and/or otherwise elevated or located so as to prevent water from entering or accumulating within the components during conditions of flooding.

5.1-4 Utilities

- _64__ All new and replacement water supply systems shall be designed to minimize or eliminate infiltration of flood waters into the systems;
- _65__ New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of flood waters into the systems and discharges from the systems into flood waters; and
- _66__ Onsite waste disposal systems shall be located to avoid impairment to them or contamination from them during flooding. New on-site sewage disposal systems are prohibited in the Riparian Buffer Zone, the floodway, in areas not yet mapped where there could be channel migration and within the 10-year floodplain elevation.

5.1-5 Subdivision Proposals

- _67__ All subdivision proposals shall be consistent with the need to minimize flood damage;
- _68__ All subdivision proposals shall have public utilities and facilities, such as sewer, gas, electrical, and water systems located and constructed to minimize or eliminate flood damage;
- _69__ All subdivision proposals shall have adequate drainage provided to reduce exposure to flood damage; and,
- _70__ Where base flood elevation data has not been provided or is not available from another authoritative source, it shall be generated for subdivision proposals and other proposed developments which contain at least 50 lots or 5 acres (whichever is less).
- _71__ All subdivision proposals shall be consistent with the need to maximize riparian ecosystems, allow for channel migration and preserve existing beneficial natural functions, by:
- a) Identifying the Riparian Buffer Zone, floodway, and channel migration zone (if known) on proposed subdivision maps.
 - b) Prohibiting new, buildable lots within the Riparian Buffer Zone, floodway and, if known, the channel migration zone.
 - c) Requiring that new lots outside the Riparian Buffer Zone, floodway and, if known, the channel migration zone, have land with adequate building space outside the 100-year floodplain.
 - d) For existing legal subdivisions in the floodplain, new construction on lots that have adequate buildable space outside the floodplain is directed to that location.
 - e) For any development that can occur in new subdivisions, such as access roads, utilities, parks, trails, etc., limits on impervious surfaces and native vegetation removal at Section 5.5 shall apply, and new road crossings over streams are prohibited.
 - f) The local administrator should apply concepts of cluster development, density transfer, credits and bonuses, planned unit development, and transfer of development rights wherever possible and allowed by the (city's, county's) development codes.

Note: most local jurisdictions will know where the Channel Migration Zone is because

that is a requirement of the inventory that is done as part of developing a Shoreline Master Program under the new Shoreline Guidelines. Saying “if known” provides a very large loophole for not getting this information.

5.1-6 Review of Building Permits

Where elevation data is not available either through the Flood Insurance Study, FIRM, or from another authoritative source (Section 4.3-2), applications for building permits shall be reviewed to assure that proposed construction will be reasonably safe from flooding. The test of reasonableness is a local judgment and includes use of historical data, high water marks, photographs of past flooding, etc., where available. Failure to elevate at least two feet above the highest adjacent grade in these zones may result in higher insurance rates.

2 SPECIFIC STANDARDS

In all areas of special flood hazards where base flood elevation data has been provided (Zones A1-30, AH, and AE) as set forth in Section 3.2, BASIS FOR ESTABLISHING THE AREAS OF SPECIAL FLOOD HAZARD, or Section 4.3-2, Use of Other Base Flood Data (In A and V Zones), the following provisions are required:

5.2-1 Residential Construction

72 New construction and substantial improvement of any residential structure shall have the lowest floor, including basement, elevated one foot or more above the base flood elevation.

73 Fully enclosed areas below the lowest floor that are subject to flooding are prohibited, or shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwaters. Designs for meeting this requirement must either be certified by a registered professional engineer or architect or must meet or exceed the following minimum criteria:

17 A minimum of two openings having a total net area of not less than one square inch for every square foot of enclosed area subject to flooding shall be provided.

18 The bottom of all openings shall be no higher than one foot above grade.

19 Openings may be equipped with screens, louvers, or other coverings or devices provided that they permit the automatic entry and exit of floodwaters.

5.2-2 Nonresidential Construction

New construction and substantial improvement of any commercial, industrial or other nonresidential structure shall either have the lowest floor, including basement, elevated one foot or more above the base flood elevation; or, together with attendant utility and sanitary facilities, shall:

- _74__ Be floodproofed so that below one foot or more above the base flood level the structure is watertight with walls substantially impermeable to the passage of water;
- _75__ Have structural components capable of resisting hydrostatic and hydrodynamic loads and effects of buoyancy;
- _76__ Be certified by a registered professional engineer or architect that the design and methods of construction are in accordance with accepted standards of practice for meeting provisions of this subsection based on their development and/or review of the structural design, specifications and plans. Such certifications shall be provided to the official as set forth in Section 4.3-3(2);
- _77__ Nonresidential structures that are elevated, not floodproofed, must meet the same standards for space below the lowest floor as described in 5.2-1(2);
- _78__ Applicant's floodproofing nonresidential buildings shall be notified that flood insurance premiums will be based on rates that are one foot below the floodproofed level (e.g. a building floodproofed to the base flood level will be rated as one foot below).

5.2-3 Manufactured Homes

(1) All manufactured homes to be placed or substantially improved on sites:

- (i) Outside of a manufactured home park or subdivision,
- (ii) In a new manufactured home park or subdivision,
- (iii) In an expansion to an existing manufactured home park or subdivision, or
- _20__ In an existing manufactured home park or subdivision on which a manufactured home has incurred "substantial damage" as the result of a flood;

Shall be elevated on a permanent foundation such that the lowest floor of the manufactured home is elevated one foot or more above the base flood elevation and be securely anchored to an adequately designed foundation system to resist flotation, collapse and lateral movement.

(2) Manufactured homes to be placed or substantially improved on sites in an existing manufactured home park or subdivision that are not subject to the above manufactured home provisions shall be elevated so that either:

- (i) The lowest floor of the manufactured home is elevated one foot or more above the base flood elevation, or
- (ii) The manufactured home chassis is supported by reinforced piers or other foundation elements of at least equivalent strength that are no less than 36 inches in height above grade and be securely anchored to an adequately designed foundation system to resist flotation, collapse, and lateral movement.

5.2-4 Recreational Vehicles

Recreational vehicles placed on sites are required to either:

- (i) Be on the site for fewer than 180 consecutive days; or

- (ii) Be fully licensed and ready for highway use, on its wheels or jacking system, is attached to the site only by quick disconnect type utilities and security devices, and has no permanently attached additions; or
- (iii) Meet the requirements of 5.2-3 above and the elevation and anchoring requirements for manufactured homes.

5.3 BEFORE REGULATORY FLOODWAY

In areas with base flood elevations but where a regulatory floodway has not been designated, no new construction, substantial improvements, or other development (including fill) shall be permitted within Zones A1-30 and AE on the community's FIRM, unless it is demonstrated that the cumulative effect of the proposed development, when combined with all other existing and anticipated development, will not increase the water surface elevation of the base flood more than one foot at any point within the community.

5.4 FLOODWAYS

Located within areas of special flood hazard established in Section 3.2 are areas designated as floodways. Since the floodway is an extremely hazardous area due to the velocity of floodwaters which carry debris, potential projectiles, and erosion potential, the following provisions apply:

- 6_ Prohibit encroachments, including fill, new construction, substantial improvements, and other development unless certification by a registered professional engineer is provided demonstrating through hydrologic and hydraulic analyses performed in accordance with standard engineering practice that the proposed encroachment shall not result in any increase in flood levels during the occurrence of the base flood discharge. If the mapped floodway is the greater of the measures at Section 5.5-1, uses in the floodway are subject to the restrictions of the Riparian Buffer Zone, unless an exception is applied for per Section 5.5-3(i). Also, an exception to the no-rise criteria is allowed at the discretion of the local administrator for projects designed to create or restore fish habitat, including recruitment of woody debris.
- 7_ Construction or reconstruction of residential structures is prohibited within designated floodways, except for (i) repairs, reconstruction, or improvements to a structure which do not increase the ground floor area; and (ii) repairs, reconstruction or improvements to a structure, the cost of which does not exceed 50 percent of the market value of the structure either, (A) before the repair, or reconstruction is started, or (B) if the structure has been damaged, and is being restored, before the damage occurred. Any project for improvement of a structure to correct existing violations of state or local health, sanitary, or safety code specifications which have been identified by the local code enforcement official and which are the minimum necessary to assure safe living conditions or to structures identified as historic places shall not be included in the 50 percent.
- (3) If Section 5.4(1) is satisfied, all new construction and substantial improvements shall

comply with all applicable flood hazard reduction provisions of Section 5.0,
PROVISIONS FOR FLOOD HAZARD REDUCTION.

3_ ADDITIONAL STANDARDS FOR RIPARIAN ECOSYSTEM PROTECTION

In all areas of special flood hazards, including unnumbered A and V zones, the following standards apply:

5.5-1 Riparian Buffer Zone (RBZ)

A Riparian Buffer Zone is established for all watercourses including off channel areas – areas outside this zone but within the Special Flood Hazard Area provide necessary protection to the RBZ. The RBZ is the greater of the following:

- 150 feet measured perpendicularly from ordinary high water for Type 1 and 2 salmonid-bearing streams; for Type 2 nonsalmonid-bearing and Type 3 streams, lakes and marine shorelines, the distance is 100 feet; on Type 4 and 5 streams and in arid areas, it is 50 feet;
- the Channel Migration Zone (where known) plus 50 feet;
- the mapped Floodway (where available).

- Note: Use DNR ‘s new definitions for stream types. Also, you could make this consistent with the standards for Vegetation Protection areas under the Shoreline Guidelines.

The Riparian Buffer Zone is an overlay zone that encompasses lands as defined above on either side of all streams, and for all other watercourses including off channel areas. The RBZ is a no-disturbance zone, other than for approved stream restoration activities. Any property or portion thereof that lies within the RBZ is subject to the restrictions of the RBZ, as well as any zoning restrictions that apply to the parcel in the underlying zone. Restrictions in this area apply to all development, per the definition of “development,” and the following restrictions are specifically noted:

- 1_ Buildings, including accessory buildings, are prohibited.
- 2_ No new impervious surfaces may be created.
- 10__ Removal of native vegetation is prohibited.
- 11__ New clearing, grading, filling, land-disturbing activity or other “development” (see definition) is not allowed, other than for the purpose of replacing non-native vegetation with native vegetation, and for other restoration work that may be approved by the local administrator.
- 12__ Septic tanks and drain fields, dumping of any materials, hazardous or sanitary waste landfills, and receiving areas for toxic or hazardous waste or other contaminants, are prohibited.

5.5-2 Outside the Riparian Buffer Zone

Outside the Riparian Buffer Zone but within the floodplain, the following restrictions apply:

- 3_ Buildings shall be set back 15 feet from the RBZ and shall be constructed using post, pier, piling or stem-wall construction techniques, which permit water to flow beneath the structure, or;
- 4_ If a building is proposed to be built on earth fill, it must be set back 15 feet from the RBZ and the applicant must obtain a certification from a qualified professional that the fill will/will not harm fish habitat, and that it will/will not block side channels, or inhibit channel migration, or increase flood hazard to others i.e., the fill will not be placed within a channel migration zone, whether or not the [city, county] has delineated such zones as of the time of the application. This certification must comply with the (city's, county's) peer review process.
- 5_ Balanced cut and fill techniques may be used to elevate a structure, provided the structure is set back 15 feet from the RBZ and the fill is approved by the local administrator, who shall require certification from a qualified professional that the fill will will/will not harm fish habitat, and that it will/will not block side channels or inhibit channel migration, or increase flood hazard to others i.e., the fill will not be placed within a channel migration zone whether or not the [city, county] has delineated such zones as of the time of the application. This certification must comply with the (city's, county's) peer review process.
OPTIONAL: Change "may" to "shall" in (c) and require balanced cut and fill together with a required certification; replace (b) with (c).
- 6_ Creation of new impervious surfaces shall not exceed 10 percent of the surface area of the portion of the lot in the floodplain.
- 7_ Removal of native vegetation must leave 65 percent of the surface area of the portion of the lot in the floodplain in an undeveloped state; the 65 percent pertains to the entire portion of the lot in the floodplain, including that area in the RBZ, where removal of native vegetation is prohibited.
- 8_ For existing lots created before the date of this ordinance, and for lots in degraded condition, the applicant can apply for an exception to the impervious surface and vegetation retention requirements. The standard for exceptions is to minimize total building coverage and all other impervious surfaces to allow up to 3000 square feet of disturbance if the lot is less than 30,000 square feet, and no more than 10 percent if the lot is greater than 30,000 square feet. Disturbance includes land alteration involving grading, utility installation and landscaping, but does not include land used for an on-site sewage disposal system. If the applicant cannot meet the impervious surface and/or vegetation retention standards because of site degradation, he/she will be notified of possible consequences related to the Endangered Species Act, and provided such notification described at Section 4.3-1(4), the purpose of which is to encourage

restoration.

- 9_ The proposed action must be designed and located so that it will not require new structural flood protection (e.g., levees)

5.5-3 Exceptions to Restrictions of the Riparian Buffer Zone

The local administrator may grant an exception to the requirements of the Riparian Buffer Zone. Such an exception must be based on a report prepared by a qualified professional for the applicant, and shall require conditions of approval, including mitigation and/or restoration, necessary to assure that the action will not in any way degrade riparian ecosystem functions.

- 10_ Some uses are allowed outright, including activities such as: [1] repair or remodel of an existing building in its existing footprint, including buildings damaged by fire or other casualties; [2] removal of noxious weeds; [3] replacement of non-native vegetation with native vegetation; [4] ongoing activities such as lawn and garden maintenance; [5] removal of hazard trees; [6] normal maintenance of public utilities and facilities; and [7] restoration or enhancement of floodplains, riparian areas and streams that meet Federal and State standards.
- 11_ Water-dependent uses, such as fish enhancement projects approved by the (city, county), private boat docks, marinas, boat ramps, etc.
- 12_ Normal farm practices, other than buildings, in existence at the date of adoption of this ordinance, on land zoned for agriculture.
- 13_ Crossings by transportation facilities and utility lines. Issuance of permits for such uses or activities is contingent upon the completion of a feasibility study that identifies alternative routing strategies that do not violate the RBZ, and on a mitigation plan that assures no net loss of ecological functions in the RBZ and provides restoration where the RBZ is degraded.
- 14_ Trails are only allowed after a critical areas study documents no loss of buffer function, mitigation is added which may include increasing buffer widths equal to the width of the trail, construction uses pervious materials, and the trail is located on the portion of the buffer that is farther away from the stream.
- 15_ New construction of single-family buildings is not permitted except as may be approved through a variance related to size, shape or topography of the property weighed against the possibility of a taking for a parcel that was legally created prior to the date of this ordinance, and may only be allowed if the action results in an equal or greater level of ecological function than the current condition, as certified by a qualified professional.
- 16_ Buffer width averaging may be allowed by the local administrator if it is based on a Habitat Management Plan prepared by a qualified professional, will provide additional natural resource protection over existing conditions, and the total area contained in the

buffer on the development proposal site does not decrease nor is there more than a 25 percent decrease anywhere within the buffer. The local administrator may increase buffer widths when necessary to protect streams. This action will be supported by appropriate documentation demonstrating that: [1] a larger buffer is necessary to maintain critical habitat; [2] increased protection is necessary based on evidence of a migrating stream channel; or [3] the adjacent land is susceptible to severe erosion and erosion control measures cannot effectively prevent adverse impacts to the riparian area.

- 17_Floodway exception. If a proposed site is in a floodway that exceeds the other two distance measurements in the RBZ, the applicant has the option to determine whether or not the site is located within the elevation of the 10-year floodplain. If it is both within the floodway and 10-year floodplain, the RBZ and floodway restrictions apply; if it is within the floodway but outside the 10-year floodplain, floodway restrictions and restrictions outside the RBZ apply.
- 18_Modifications based on detailed community studies. If a community has completed, documented and adopted a detailed, comprehensive watershed-type analysis that better defines riparian areas based on site conditions, etc., that material can be used to modify the RBZ distances (150, 100 and 50 feet) in Section 5.5-1.

